The Writer/Editor and the Computer
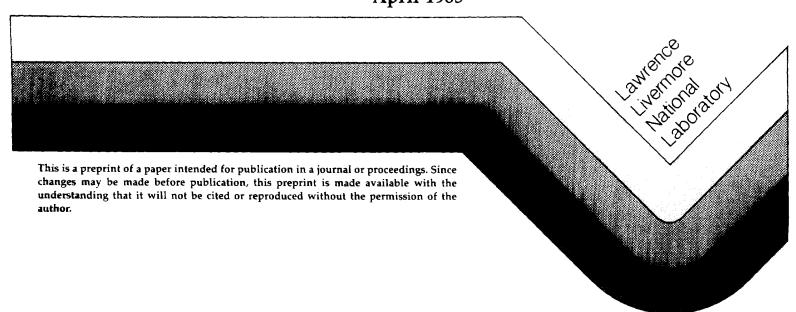
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Abstract

When the computer entered the publications process it created almost seismic shocks all along the line of creation from authoring to editing to composing to layout and to printing. Authors and editors of scientific and engineering documents felt the impact in adverse as well as beneficial ways. In the traditional system, the writer/editor took from an author a manuscript and, using the powers of wordsmithing and the knowledge of the publications process, created a finished document using nothing more sophisticated than a red pencil for the mechanical process. Once the computer entered the scene, the writer/editor had to learn different hardware systems, try to keep up with the software explosion, and fight against a rising fear that a machine was going to take over. Fortunately, an innate flexibility and specialized knowledge of how to get a document into the best form for its specific audience guaranteed the writer/editor's survival; although there is still a long way to go in this transition phase from red pencil to VDT. This paper reviews the experiences of writer/editors in one scientific laboratory, experiences that typify challenges the forward-moving manager of a technical document production system can expect to encounter.

Introduction

Computers have influenced the way technical and scientific documents are published. The impact has been particularly severe in the writing and editing of scientific and technical documents. While it is true that not all scientific laboratories have turned to electronic publishing, it is just a matter of time until they will. The recent events in technical publishing at Lawrence Livermore National Laboratory (LLNL), in Livermore California, are so typical of what can befall a group of technical writers and editors who enter the world of computer-aided publishing that a description of its success will benefit other writer/editors and the supervisors who must try to anticipate quick changes in circumstances.

All of the specialists in the chain of tasks that it takes to publish a document have felt the influence of the word processor or the computer: author, writer/editor, compositor, artist, proofer, layout artist, and printer. The scope of this paper limits me to concentrate on the writer/editor. At

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LLNL, writer/editors are the people in the publishing picture who either write a document at someone's request, using the resources of scientists; or they edit what someone else has printed, acting, in effect, as an early reviewer, fine tuner, and scribe as well as production coordinator to get the report out the door in suitably printed form.

Introducing a new element into an already functioning system is bound to perturb it. When we adopted an electronic word processor (Wang) into our technical writing and editing function ten years ago, we knew we were going to go through the usual struggle to change people's thinking. It would take training and persuasion to wean the writer/editors from their red pencils. "Typing is for secretaries," some said, troubled that their status as professionals was endangered. Others simply didn't like computers and weren't going to dilute their skills by wasting time learning them. (Crawford, 1979.)

We didn't go into electronic editing blind. For many years there has been a group of writer/editors here at LLNL who work online, editing computer user documents for two centers here that are the largest of their kind in the world. But these writer/editors are specialists; they were, at one time, considered strange birds who dwelled outside the main force of our Editorial Division. After all, they never produced any hard copy. The writing and editing they did was left on the systems to be used by new users of that system. But they knew electronic editing backwards and forwards. They had already proved that it made sense in those places where the computer was the center of business and scientific attention.

The System Sells Itself

It was the word processor itself that won editors over. Once the writer/editors got used to it, they saw their work output go up. They saw other professionals using word processors, i.e., journalists began to be seen on television using VDT's instead of the ubiquitous typewriter. To be sure there were problems: authors (I use the term "authors" to refer to scientists and engineers who write papers that writer/editors will later process through publication) had a hard time reviewing clean new drafts that they themselves had not produced. They grew circumspect about changes. Where were the red-pencil marks that were so easy to accept or reject? Much enmity vanished when the writer/editors got to know the authors well and gained their trust, and author and editor learned ways to indicate changes electronically, italicizing or underlining, for example.

Standardization—an Elusive Dream

So by 1980, we had a comfortable arrangement. All we writer/editors had to do to achieve electronic output was to link our word processor to a phototypesetter. But success was forestalled by several things.

Diversity. First, conditions in the market place ganged up on us. One of the immutable facts of life is that successful systems invite tampering. "Get something working right and someone will change it." Stasis is atrophy. The trend in the computer manufacturing world is to produce new hardware almost weekly. And each manufacturer wants to be different enough to attract its own user group. What does this mean to us? It means that as soon as we adapt our shop to the hardware on the market, something new crops up for us to contend with. Even Wang itself, which has been in widespread use at the Laboratory, introduced new systems that would not communicate with each other one-hundred percent.

Laissez Faire. Second, and even more challenging for publishers at LLNL, the Laboratory has a habit of letting each organization choose its own computer for its unique needs. There are 8000 people at Lawrence Livermore National Laboratory, many of them scientific and professional people who are accustomed to making great things happen as long as they are left alone. Left alone means that I buy the computer I want for my scientific project, and not something the Laboratory thinks might fit the overall scheme. And that policy, or lack of policy, has worked well here for the scientists but not so well for the writer/editor. Having at least one of just about every computer built in America has been tough on the technical publications people. Let me give an example.

Most of the secretarial staff used Wang until 1981. The publications staff also used Wang. When we got a report to edit and publish, it came on a familiar medium to us, a Wang diskette. But the hardware inventory began to multiply. We have computers of all sizes, personal computer to CRAY, all producing documents. Wang is still here, but there are other word processing units as well.

So we writer/editors had a decision to make: either we would learn their systems so we could edit on them, or we would learn how to bring technical documents from their computer to our word processor over a network of interfacing telecommunicators. We put a heavy effort into developing interfaces. It was just too much work to expect our writer/editors to change from system to system. There were exceptions, of course; some writer/editors take readily to the electronic medium. But these were, at that time, a minority.

Author Independence. The third thing that stalled success was that a subtle change began around the Laboratory in 1982. Scientists and engineers, especially the computer-wise young ones, became more eager to write their own first drafts without recourse to the services of a secretary or technical writer/editor. The computer was their friend. They worked with it all day. It was easier to face a blank computer screen than a blank piece of paper. All they had to do was install an editing program and insert the techniques, data, and results of their work to produce a draft. That is exactly what they did. This gave the authors the impression that they were independent and meant that the technical writer/editor was many times more likely to see submitted drafts on a strange medium. We began to get reports via "hard-wired interconnects, floppy disks, modem, or magnetic tape." (Downey, 1984). In other words, an organization with a PDP-11 or a VAX or an IBM, CRAY, CD 7600, PRIME, or Apple sees the world from that point of view. Greater effort had to be made to bring the material across the interfaces to our publication system.

The Software Explosion. Fourth, and last, a software explosion hit us. This software came in the form of on-line dictionaries, word counters that estimated fog factors, punctuation analyzers, even text editing programs that could also drive typesetting programs for laser copiers. Some of the authors began to believe that they could live without writer/editors

In the summer of 1982, there was a seminar held the Society for Technical Information near San Francisco. The topic of the seminar was *Are Technical Writer/Editors Obsolete?* The argument from the pro side was that computer editing devices would indeed relieve authors of a lot of editing help. The result was a minor worry on the part of technical writer/editors and even a decline in the estimated growth of full-service publishing work we in the publications organization did for the Laboratory. This decline still persists.

The first two of these four problems, the diversity of hardware and the policy of using whichever computer suits the job, were handled by the black box, the telecommunicator. The following section tells how we fared in this. The third and fourth problems, the revolt against writing and editing and the software explosion, are dealt with under *Wordsmithing to the Rescue* below.

Solution

The "black box" technology was slow in developing. Computer manufacturers were not anxious to have their machines linked to others. The job of supplying interfaces would have to be handled by small enterprises. In 1981 there was one interface on the market that would translate data from some Laboratory computers to our word processor, and both systems had to use ASCII codes. In some cases, saving the ASCII keystrokes is not enough, and translation tables, or glossaries, have to be written for converting commands. (Smith, 1984.) These translators were limited in scope and expensive to buy. But scientists and engineers here developed ad hoc translators betweeen systems during an interim period that got us to the present-day proliferation of black boxes.

Here is an excerpt from a paper written at the Laboratory that addresses some of the difficulty of transferring text files from one system to another: "Documents generated on PCs are typically done with WP programs, although some documents are generated by a text-editor program .... For example, many of the documents we get from DEC systems are generated with a text editor. A WP document has imbedded control codes. These put formatting information into the text. Conversely, a document created with a text editor does not have control codes, just text. Throughout the computer industry, everyone agrees on the standard ASCII character code; that is, the code for "A" in New York is the same as the code for "A" in San Francisco. BUT, the industry does not agree on WP control codes. Luckily, most WP programs have a utility that can strip a document of its control codes and leave a "print-image" of the original. (An exception is that multi-layered equations and Greek symbols may suffer damage; their codes are unique to each WP program.) Without control codes, WP documents become the same as documents produced with text-editing programs. That is, the output consists of ASCII text, but NO control codes." (Downey 1984.)

Because of these characteristics, transfers of text tend to work in one direction better than in another. As already noted, to go from a device that uses a text editor (with its embedded commands) to a word processor requires removing the embedded commands. That's fairly straight forward. Putting them back to go in the other direction is not easy. This means that an author has to be through altering his text before sending it to the writer/editors for publishing, because he can't get it back on his familiar system.

Despite these difficulties, we do have telecommunicators between most of the computers here at LLNL and our text-editor. Not only that, there is a growing number commercial products that handle telecommunicating and can even move files from systems with 8 in. disks to ones with 5 1/4 in. disks.

Wordsmithing to the Rescue

And what of the author's effort to gain independence of the technical writer/editor. The effort goes on, but one thing has become clear, despite the presence of software that dots the *I*'s and crosses the *T*'s, there is more to editing than cosmetics. The rush to get into the publishing business on the part of every program that had access to a large computer was too precipitous. Authors discovered a curious thing when they began to depend on their computers and their secretaries for all of their publishing help. They discovered the chief virtue of a good writer/editor--the power over the written word. That power, which is the writer/editor's chief skill, includes things computers and secretaries don't supply: the ability to adumbrate the real idea central to a report, the experience with logic which reveals to them the straightest course through an argument or exposition, the knowledge of reader psychology which saves authors from writing to themselves as though they were typical of all their readers, the vision of what the total document will look like and what it will have to go through to get to the light of day, the knowledge of building effective tables, the almost innate feel for the place to put an illustration, the practiced eye for page design, and the trusted position as leader of the team of compositors, artists, printers, photographers and proofers to get the job done on time. These are the qualities we look for in a writer/editor when we are hiring. These are the things missing from the automated setup; so authors began to come back to the publishing organization for help.

Where Are We Now?

Although resolution of one computer dilemma seems to bring on others, the remarkable change in attitude and work habit of the writer/editors at LLNL represents an evolution toward success. At present, writer/editors have a text editing computer that requires knowledge of command-driven systems. It is a system on which they can write or edit, but it is more complicated than the word processor. It drives a typesetter and produces the finest of typeset galleys. Its serious drawback is that once a document is transferred to this system through a telecommunicator, it can not easily be sent back to the author's computer. In other words, the author gets back strange-looking hard copy made of galleys instead of an edited text he can call up on his familiar computer screen. We try to sell the idea that this is no different from sending an article to a journal where the journal editors will do the same thing, but it is not convincing on a local level. The virtue of the text editing system is that it has drawn the writer/editors away from the purely word processing machines and aquainted them with more complex arrays. Suddenly the threats are diminished and writer/editors are taking to other computers more readily.

The nagging problem of too many computers still persists. But as time goes on, younger people enter the profession and push older ones to more daring experimentation with the hardware and software that is flooding the market. Compromise is the order of the day. Authors are getting their own laser printers so that their documents will have that typeset look. Editors are agreeing to work on the authors' systems, a strategy that turns out to be easier than we first thought. For one thing, editing "on line" is standard practice in the vast computer empires of nearby Silicon Valley. Working at a terminal "pays off." Our large mainframes had long had a crew of "on line" writer/editors to service the myriad user documents. Now it becomes clear that some writer/editors are going to have to go in this same direction. Others will explore distributed processing with pc-based publishing systems networked together. So we have entered a time of synthesis in which we will be thinking of ways to love the new technology, manipulate the new software, and bring the disparate into harmony.

One last development, there is a budding cottage industry in online writing/editing. We have successfully written contracts for one or more editors to work at home. This is in the experimental stage. The object is to determine how faithfully the writer/editor can transfer the habits of the office to the home environment. So far it is working well, but there are many legal as well as social rough spots to work out. The point is, this experiment would have been impossible before electronic publishing became a reality.

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